

Nettlefire – MOD015

Air Quality Screening Technical Note

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EXECUTIVE SUMMARY

This report presents the findings of an Air Quality Screening Technical Note produced to assess road traffic emissions and construction dust impacts in support of a planning application for the provision of modular accommodation at Ministry of Defence (MOD) Site MOD015 in Bicester.

Construction Assessment

Prior to the implementation of appropriate mitigation measures, the potential impact description of dust emissions associated with the construction phase of the proposed development is 'low risk' at the worst-affected receptors without mitigation. However, appropriate site-specific mitigation measures have been proposed based on Section 8.2 of the IAQM 'Guidance on the Assessment of Dust from Demolition, Earthworks, Construction and Trackout'. It is anticipated that, with these appropriate mitigation measures in place, the risk of adverse effects due to dust emissions from the construction phase will not be significant.

Operational Phase

In the context of the proposed development, road traffic is identified as the dominant emission source that is likely to cause potential risk of exposure to air pollutants at receptors. The anticipated development trips are below the IAQM & EPUK threshold of 500 LDVs and 100 HDVs, and as such, a detailed air quality assessment is deemed not to be required. A screening level assessment has been undertaken characterising baseline air quality, identifying sensitive receptors and determining the requirement for any additional mitigation beyond that is already considered for the proposed development, for example, the development of a Traffic Plan.

The assessment demonstrates that operational phase air quality impacts are not significant.

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
AADT	Annual Average Daily Traffic
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objectives
AQS	Air Quality Standards
CHP	Combined Heat and Power
CL	Critical Level
CO	Carbon Monoxide
DEFRA	Department for Environment Food & Rural Affairs
EAL	Environmental Assessment Limits
EC	European Commission
EFT	Emissions Factors Toolkit
EPUK	Environmental Protection UK
EU	European Union
EPAQS	Expert Panel on Air Quality Standards
IAQM	Institute of Air Quality Management
LA	Local Authority
LAQM	Local Air Quality Management
NGR	United Kingdom National Grid Reference
NO	Nitric Oxide
NO ₂	Nitrogen Dioxide
PC	Process Contribution
MHCLG	Ministry for Housing, Communities and Local Government
NPPF	National Planning Policy Framework
PEC	Predicted Environment Concentration
PPG	Planning Policy Guidance
PPS	Planning Policy Statements
SAC	Special Areas of Conservation
SPA	Special Protection Area
SSSI	Sites of Special Scientific Interest
UK	United Kingdom
WHO	World Health Organization

1.0 INTRODUCTION

This report presents the findings of an Air Quality Screening Technical Note produced to assess road traffic emissions and construction dust impacts in support of a planning application for the provision of modular accommodation at Ministry of Defence (MOD) Site MOD015.

1.1 SITE LOCATION

The central Grid Reference is approximately X:463203, Y:217784. The Proposed Development is bounded to the north by agricultural land. To the east, the site is bound agricultural land followed by residential properties and Lower End Road. To the south, the site is bound by Widnell Lane, followed by agricultural land and Arnott Road. To the west, the site is bound by the B4011 and Palmer Avenue, followed by agricultural land.

Reference should be made to **Figure 1-1** for a map of the application site and the surrounding area.

Figure 1-1. Satellite Image of the Site and the Surrounding Area



Google Imagery (2026)

1.2 CONTEXT

The primary source of the air quality pollutants associated with the proposed scheme is from vehicle movements, arriving and departing the proposed development. The primary source of the air quality pollutants in the baseline year is from vehicle movements on the surrounding road network. The level of traffic contribution in AADT as a result of the proposed development is anticipated to be below the EPUK & IAQM criteria of 500 AADT LDV or 100 AADT HDV outside of an AQMA, requiring further or detailed assessment. Therefore, it has not been considered necessary to quantify traffic-related air quality impacts as a result of the operation of the proposed development. As such, baseline and operation phase dispersion modelling has not been undertaken, as a result of the above threshold criteria not being met.

The following assessment stages have been undertaken as part of this assessment:

- Baseline conditions evaluation;
- Assessment of air quality during the Construction Phase
- Assessment of air quality during the Operational Phase; and,
- Identification of mitigation measures (as required).

The results of the assessment are detailed in the following sections of this report.

1.3 REPORT STRUCTURE

Following this introductory section, the remainder of this report is structured as follows:

- Section 2.0: Policy and Legislative Context
- Section 3.0: Assessment Methodology
- Section 4.0: Baseline Conditions
- Section 5.0: Assessment of Air Quality – Construction Phase
- Section 6.0: Assessment of Air Quality – Operational Phase
- Section 7.0: Mitigation
- Section 8.0: Conclusions

Technical appendices are included at the end of this report for information.

2.0 POLICY AND LEGISLATIVE CONTEXT

2.1 DOCUMENTS CONSULTED

The following documents were consulted during the undertaking of this assessment:

Legislation and Best Practice Guidance

- The Air Quality Standards Regulations (Amendments), 2019¹;
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Defra, 2007²;
- The Air Quality Strategy for England, Defra, 2023³;
- The Environment Act 1995⁴;
- The Environment Act 2021⁵;
- The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023⁶;
- PM_{2.5} Targets: Interim Planning Guidance (2024)⁷;
- National Planning Policy Framework, Ministry for Housing, Communities and Local Government, Revised February 2025⁸;
- Planning Practice Guidance: Air Quality, Ministry for Housing, Communities and Local Government, November 2019⁹;
- Land-Use Planning & Development Control: Planning for Air Quality, EPUK & IAQM, 2017¹⁰;
- A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Version 1.1), IAQM, May 2020¹¹;
- Ecological Assessment of Air Quality Impacts, CIEEM, Version 2, October 2023¹²;
- Local Air Quality Management Technical Guidance LAQM.TG(22), Defra, 2022¹³; and,
- COVID-19 Supplementary Guidance – Local Air Quality Reporting in 2021, 2021¹⁴.

¹ UK Parliament, (2019). 'The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019', HMSO, London.

² Department for Environment, Food & Rural Affairs (DEFRA), (2007). 'The Air Quality Strategy for England, Scotland, Wales and Northern Ireland', HMSO, London.

³ Department for Environment, Food & Rural Affairs (DEFRA), (2023), 'Air Quality Strategy: framework for local authority delivery'. Available on: [Air quality strategy: framework for local authority delivery - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/air-quality-strategy-framework-for-local-authority-delivery)

⁴ UK Government, (1995) 'Environment Act 1995'

⁵ UK Government, (2021) 'Environment Act 2021'

⁶ Department for Environment, Food & Rural Affairs (DEFRA), (2023), 'The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023'.

⁷ PM_{2.5} Targets: Interim Planning Guidance (2024);

⁸ Ministry of Housing, Communities and Local Government, (2025), 'National Planning Policy Framework', London.

⁹ Ministry of Housing, Communities and Local Government, (2019), 'Planning Practice Guidance-Air Quality', Ministry of Housing, Communities and Local Government, London. Available on: <https://www.gov.uk/guidance/air-quality--3#history>.

¹⁰ Environmental Protection UK & Institute of Air Quality Management (EPUK & IAQM) (2017) Land-Use Planning & Development Control: Planning for Air Quality, EPUK & IAQM, London

¹¹ IAQM (2020), 'A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Version 1.1)', IAQM, London.

¹² Chartered Institute of Ecology and Environmental Management (CIEEM), (2023) 'Ecological Assessment of Air Quality Impacts Version 2', London.

¹³ Department of Environment, Food and Rural Affairs (DEFRA). (2022). 'Local Air Quality Management Technical Guidance (TG22)'. DEFRA, London.

¹⁴ Greater London Authority (GLA). (2021). 'Local Air Quality Management Reporting in 2021 COVID-19 Supplementary Guidance'. GLA, London.

Websites Consulted

- Google maps (maps.google.co.uk)¹⁵.
- Department for Transport: Road Traffic Statistics (<https://roadtraffic.dft.gov.uk/>)¹⁶.
- Multi-Agency Geographic Information for the Countryside (<http://magic.defra.gov.uk/>)¹⁷.
- Defra Background Mapping Data for Local Authorities - 2021 (<https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021>)¹⁸.
- Planning Practice Guidance (<http://planningguidance.planningportal.gov.uk/>)¹⁹.
- Cherwell District Council (www.cherwell.gov.uk)

Site Specific Reference Documents

- Cherwell District Council, Air Quality Annual Status Report 2025²⁰; and,
- The Cherwell Local Plan 2011-2031, Adopted July 2015²¹.

2.2 AIR QUALITY LEGISLATIVE FRAMEWORK

European Legislation

European air quality legislation is consolidated under Directive 2008/50/EC, which came into force on 11th June 2008. This Directive consolidates previous legislation which was designed to deal with specific pollutants in a consistent manner and provides new air quality objectives for fine particulates. The consolidated Directives include:

- **Directive 1999/30/EC** – the First Air Quality ‘Daughter’ Directive – sets ambient air limit values for NO₂ and oxides of nitrogen, sulphur dioxide, lead and PM₁₀.
- **Directive 2000/69/EC** – the Second Air Quality ‘Daughter’ Directive – sets ambient air limit values for benzene and carbon monoxide.
- **Directive 2002/3/EC** – the Third Air Quality ‘Daughter’ Directive – seeks to establish long-term objectives, target values, an alert threshold and an information threshold for concentrations of ozone in ambient air.

The fourth daughter Directive was not included within the consolidation and is described as:

- **Directive 2004/107/EC** – sets health-based limits on polycyclic aromatic hydrocarbons, cadmium, arsenic, nickel and mercury, for which there is a requirement to reduce exposure to as low as reasonably achievable.

¹⁵ Google maps [online], from: <https://www.google.co.uk/maps>

¹⁶ Department for Transport, Road Traffic Statistics, from: <https://roadtraffic.dft.gov.uk/>

¹⁷ Department for Environment, Food and Rural Affairs, MAGIC [online], from: <https://magic.defra.gov.uk/MagicMap.aspx>

¹⁸ Department for Environment, Food and Rural Affairs, Background Maps, from: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021>

¹⁹ National Planning Portal, from: <https://www.gov.uk/guidance/air-quality--3#what-air-quality-considerations-does-planning-need-to-address>

²⁰ Cherwell District Council, (2025). ‘Cherwell District Council, 2025 Air Quality Annual Status Report’. (CDC)

²¹ Cherwell District Council. ‘Cherwell Local Plan 2011-2031’. (CDC)

The European Commission (EC) Directive Limits, outlined above, have been transposed in the UK through the Air Quality Standards Regulations. In the UK responsibility for meeting ambient air quality limit values is devolved to the national administrations in England, Scotland, Wales and Northern Ireland.

The European Union (Withdrawal) Act 2018 (EUWA) provides a new framework for the continuity of 'retained EU law' in the UK. EU Directives no longer have to be implemented by the UK except to any extent agreed or decided by the UK unilaterally.

EUWA retains the domestic effect of EU Directives to the extent already implemented in UK law, by preserving the relevant domestic implementing legislation enacted in UK law before 'Implementation Period' completion day. Though the EU Directives are not retained, following the UK's departure from the EU, the EUWA converts the current framework of Air Quality targets, however the role that the EU instructions were party to are lost.

UK Legislation

The Air Quality Standards Regulations (Amendments 2019) seek to simplify air quality regulation and provide a new transposition of the Air Quality Framework Directive, First, Second and Third Daughter Directives and also transpose the Fourth Daughter Directive within the UK. The Air Quality Limit Values are transposed into the updated Regulations as Air Quality Standards, with attainment dates in line with the European Directives. SI 2010 No. 1001, Part 7 Regulation 31 extends powers, under Section 85(5) of the Environment Act (1995), for the Secretary of State to give directions to Local Authorities (LAs) for the implementation of these Directives.

The UK Air Quality Strategy is the method for implementation of the air quality limit values in England, Scotland, Wales and Northern Ireland and provides a framework for improving air quality and protecting human health from the effects of pollution.

For each nominated pollutant, the Air Quality Strategy sets clear, measurable, outdoor air quality standards and target dates by which these must be achieved; the combined standard and target date is referred to as the Air Quality Objective (AQO) for that pollutant. Adopted national standards are based on the recommendations of the Expert Panel on Air Quality Standards (EPAQS) and have been translated into a set of Statutory Objectives within the Air Quality (England) Regulations (2000) SI 928, and subsequent amendments. The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 amends the AQO for PM_{2.5} outlined within the Air Quality Standards Regulations (2010 & 2019 Amendments).

The AQOs for pollutants included within the Air Quality Strategy and assessed as part of the scope of this report are presented in **Table 2-1** and **Table 2-2** along with European Commission (EC) Directive Limits and World Health Organisation (WHO) Guidelines. The ecological levels are based on WHO and CLRTAP (Convention on Long-range Transboundary Air Pollution) guidance.

Table 2-1. Air Quality Standards, Objectives, Limits and Target Values

Pollutant	Applies	Objective	Concentration Measured as ¹⁰	Date to be achieved and maintained thereafter	European Obligations	Date to be achieved and maintained thereafter	New or existing
PM ₁₀	UK	50 µg/m ³ by end of 2004 (max 35 exceedances a year)	24-hour Mean	1 st January 2005	50 µg/m ³ by end of 2004 (max 35 exceedances a year)	1 st January 2005	Retain Existing
	UK	40 µg/m ³ by end of 2004	Annual Mean	1 st January 2005	40 µg/m ³	1 st January 2005	
PM _{2.5}	UK	20 µg/m ³	Annual Mean	1 st January 2020	-	-	Retain Existing
	UK	10 µg/m ³	Annual Mean	31 st December 2040	-	-	New
NO ₂	UK	200 µg/m ³ not to be exceeded more than 18 times a year	1-Hour Mean	31 st December 2005	200 µg/m ³ not to be exceeded more than 18 times a year	1 st January 2010	Retain Existing
	UK	40 µg/m ³	Annual Mean	31 st December 2005	40 µg/m ³	1 st January 2010	

Table 2-2. Ecological Air Quality Standards, Objectives, Limit and Target Values

Pollutant	Applies	Objective	Concentration Measured as
NO _x	UK	30 µg/m ³	Annual Mean

Within the context of this assessment, the annual mean objectives are those against which facades of residential receptors will be assessed and the short-term objectives apply to all other receptor locations, where people may be exposed over a short duration, both residential and non-residential such as using gardens, balconies, walking along streets, using playgrounds, footpaths or external areas of employment uses.

Local Air Quality Management

Under Section 82 of the Environment Act (1995) (Part IV) Local Authorities (LAs) are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves assessing present and likely future air quality against the AQOs. If it is predicted that levels at the façade of buildings where members of the public are regularly present (normally residential properties) are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA).

Environment Act 2021

The Environment Act (2021) introduces a commitment to create a legally binding duty on government to reduce the concentrations of fine particulate matter (PM_{2.5}) in ambient air, and to set a long-term target expected to be 10 µg/m³, a reduction from the current Air Quality objective of 20 µg/m³ set out within the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020.

The Environment Act 2021 requires a draft of a statutory instrument (or drafts of statutory instruments) containing regulations setting that the PM_{2.5} air quality target must come into force.

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 was published on 31st January 2023, and came into force the following day. The 2023 Regulations introduce a reduced long-term annual average Air Quality Objective for PM_{2.5} of 10 µg/m³, a reduction from the current Air Quality objective of 20 µg/m³ set out within the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020. Additionally, the 2023 Regulations introduce a population exposure target for PM_{2.5} where there is at least a 35% reduction in population exposure by the end of 31st December 2040, as compared with the average population exposure in the three-year period from 1st January 2016 to 31st December 2018.

It should be noted that, whilst the UK Government and Defra has recently set two new targets for Particulate Matter (PM_{2.5}) (as per The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023), in March 2023, the Department for Levelling Up, Housing and Communities (DLUHC) explained that the new PM_{2.5} targets will “...need to be integrated into the planning system, and in setting out planning guidance for local authorities and businesses, we will consider the specific characteristics of PM_{2.5}. The guidance will be forthcoming in due course, until then we expect local authorities to continue to assess local air quality impacts in accordance with existing guidance.” This approach was detailed within the Chief Planners Newsletter, published by the DLUHC¹. Therefore, until the new guidance referenced by the DLUHC is published, there is no specific requirement to assess against these new targets.

2.3 PLANNING AND POLICY GUIDANCE

National Policy

National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF), revised 7th February 2025 (minor revision of 12th December 2024 NPPF), principally brings together and summarises the suite of Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) which previously guided planning policy making. The NPPF states that:

Paragraph 110

“The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both

plan-making and decision-making.”

Paragraph 187

“Planning policies and decisions should contribute to and enhance the natural and local environment by: ...

...e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.”

Paragraph 199

“Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.”

Paragraph 201

“The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.”

Planning Practice Guidance (PPG)

The Planning Practice Guidance (PPG) web-based resource was updated by the Ministry for Housing, Communities and Local Government (MHCLG) on 1st November 2019 to support the National Planning Policy Framework and make it more accessible. A review of PPG: Air Quality identified the following guidance (Paragraph: 001 Reference ID: 32-001-20191101):

“The 2008 Ambient Air Quality Directive sets legally binding limits for concentrations in outdoor air of major air pollutants that affect public health such as particulate matter (PM_{10} and $PM_{2.5}$) and nitrogen dioxide (NO_2).

The UK also has national emission reduction commitments for overall UK emissions of 5 damaging air pollutants:

- *fine particulate matter ($PM_{2.5}$);*
- *ammonia (NH_3);*

-
- nitrogen oxides (NO_x);
 - sulphur dioxide (SO₂); and
 - non-methane volatile organic compounds (NMVOCs).

As well as having direct effects on public health, habitats and biodiversity, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems. Odour and dust can also be a planning concern, for example, because of the effect on local amenity.”

Further guidance referring to additional considerations when assessing air quality impacts is outlined below.

“Considerations that may be relevant to determining a planning application include whether the development would:

- *Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield...*
- *Introduce new point sources of air pollution...*
- *Expose people to harmful concentrations of air pollutants...*
- *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations;*
- *Have a potential adverse effect on biodiversity.”*

Guidance on how detailed an air quality assessment needs to be provided and how air quality can be mitigated, is stated below.

“Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific...

...Mitigation option will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with the applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented.”

Local Policy

The Cherwell Local Plan

The Cherwell Local Plan 2011-2031 was adopted in 2015 and sets out the council’s vision and strategy for the borough until 2031.

Following a review of the Cherwell Local Plan 2011-2031, the following policy concerning air quality was identified:

“Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment

...Air quality assessments will also be required for development proposals that would be likely to have a significantly adverse impact on biodiversity by generating an increase in air pollution...”

3.0 ASSESSMENT METHODOLOGY

There is potential for environmental effects during the operational phase of the proposed development due to emissions from proposed vehicle movements. The significance of potential environmental effects is assessed according to the latest guidance produced by EPUK and IAQM in January 2017 '*Land-Use Planning & Development Control: Planning for Air Quality*', May 2020 '*A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites*' and January 2023 '*Ecological Assessment of Air Quality Impacts*'.

The EPUK and IAQM in January 2017 '*Land-Use Planning & Development Control: Planning for Air Quality*' guidance document outlines the criteria used for screening the need for an Air Quality Statement.

Table 3-1. Indicative Criteria for Requiring an Air Quality Statement

The Development will:	Indicative Criteria to Proceed to an Air Quality Statement
Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans <3.5t gross vehicle weight).	A change of LDV flows of: - more than 100 AADT within or adjacent to an AQMA. - more than 500 AADT elsewhere.
Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight).	A change of HDV flows of: - more than 25 AADT within or adjacent to an AQMA. - more than 100 AADT elsewhere.
Realign roads, i.e. changing the proximity of receptors to traffic lanes	Where the change is 5m or more, and the road is within an AQMA.
Introduce a new junction or remove an existing junction near to relevant receptors	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, e.g. traffic lights, or roundabouts.
Introduce or change a bus station	Where bus flows will change by: - more than 25 AADT within or adjacent to an AQMA. - more than 100 AADT elsewhere.
Have an underground car park with an extraction system	The ventilation extract for the car park will be within 20m of a relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out).

3.1 ESTIMATING HOURLY AND DAILY MEAN CONCENTRATIONS

The latest Local Air Quality Management (LAQM) Technical Guidance TG (22) has been used for predicting 1 hourly and 24-hourly pollutant concentrations.

The guidance states that the one hour mean NO₂ AQO of 200 µg/m³ is not likely to be exceeded at any roadside locations if the annual mean concentration is below 60 µg/m³. Therefore, this assessment evaluates the likelihood of exceeding the hourly average NO₂ objective by comparing predicted annual average NO₂ concentrations at all receptors to an annual average equivalent threshold of 60 µg/m³ NO₂. Where predicted concentrations are below this value, it can be concluded that the hourly average NO₂ objective is likely to be achieved.

Additionally, it is understood that the 24-hour PM₁₀ objective could be exceeded at roadside locations where the annual mean concentration is above 32 µg/m³. Therefore, this assessment evaluates the likelihood of exceeding the hourly average PM₁₀ objective by comparing predicted annual average PM₁₀ concentrations at all receptors to an annual average equivalent threshold of 32 µg/m³ PM₁₀. Where predicted concentrations are below this value, it can be concluded that the hourly average 24-hour mean objective is likely to be achieved.

In accordance with the TG (22) guidance, the short term 24 hourly PM₁₀ mean concentrations can be calculated using the following equation as presented below.

$$\text{Number of 24 hour mean exceedances} = -18.5 + 0.00145 \times \text{annual mean}^3 + \left(\frac{206}{\text{annual mean}} \right)$$

COVID-19 Supplementary Guidance - Local Air Quality Reporting in 2021

This supplementary guidance document was prepared in order to inform the local authorities in England of the key changes and points of reference with respect to LAQM duties, as described in Part IV of the Environment Act 1995, for the 2021 reporting year. This document also outlines the validity of the data collected throughout COVID-19.

Land-Use Planning & Development Control: Planning for Air Quality

This document provides advice and guidance to ensure that air quality is adequately considered in the land-use planning and development control processes. This is applicable to assessing the effect of changes in exposure of members of the public resulting from residential and mixed-use developments.

4.0 BASELINE CONDITIONS

4.1 AIR QUALITY REVIEW

This section provides a review of the existing air quality in the vicinity of the application site. Baseline air quality in the vicinity of the application site has been defined from several sources, as described in the following sections.

Local Air Quality Management (LAQM)

The proposed development site falls within the jurisdiction of Cherwell District Council (CDC).

As required under section 82 of the Environment Act 1995, CDC has undertaken an ongoing exercise to review and assess air quality within its area of jurisdiction. The assessments have indicated that concentrations of NO₂ and PM₁₀ are above the relevant AQOs at any locations of relevant public exposure within the Borough. Therefore, CDC has two designated Air Quality Management Areas (AQMAs) that are shown below.

Table 4-1. Local Authority AQMA Details

AQMA	Description	Date Declared	Date Amended	Pollutants Declared
AQMA No.1	The designated area incorporates Hennef Way between the junctions with Ermont Way and Concorde Avenue.	17/01/2011	N/A	1-Hour Mean and Annual Mean Nitrogen Dioxide NO ₂
AQMA No.4	The designated area incorporates sections of Kings End, Queens Avenue, Field Street, St Johns Street, Bicester.	09/10/2015	N/A	Annual Mean Nitrogen Dioxide NO ₂

The proposed development site is situated approximately 6.5 km to the south east of AQMA No.4.

Air Quality Monitoring

In June 2025, CDC published their latest 2024 Air Quality Annual Status Report (ASR) which provides annual mean monitoring data between 2020-2024.

Monitoring of air quality within the CDC has been undertaken through non-automatic monitoring methods in 2024. These have been reviewed in order to provide an indication of existing air quality in the area surrounding the application site.

Automatic Monitoring

CDC did not undertake any automated monitoring in 2024.

Non - Automatic Monitoring

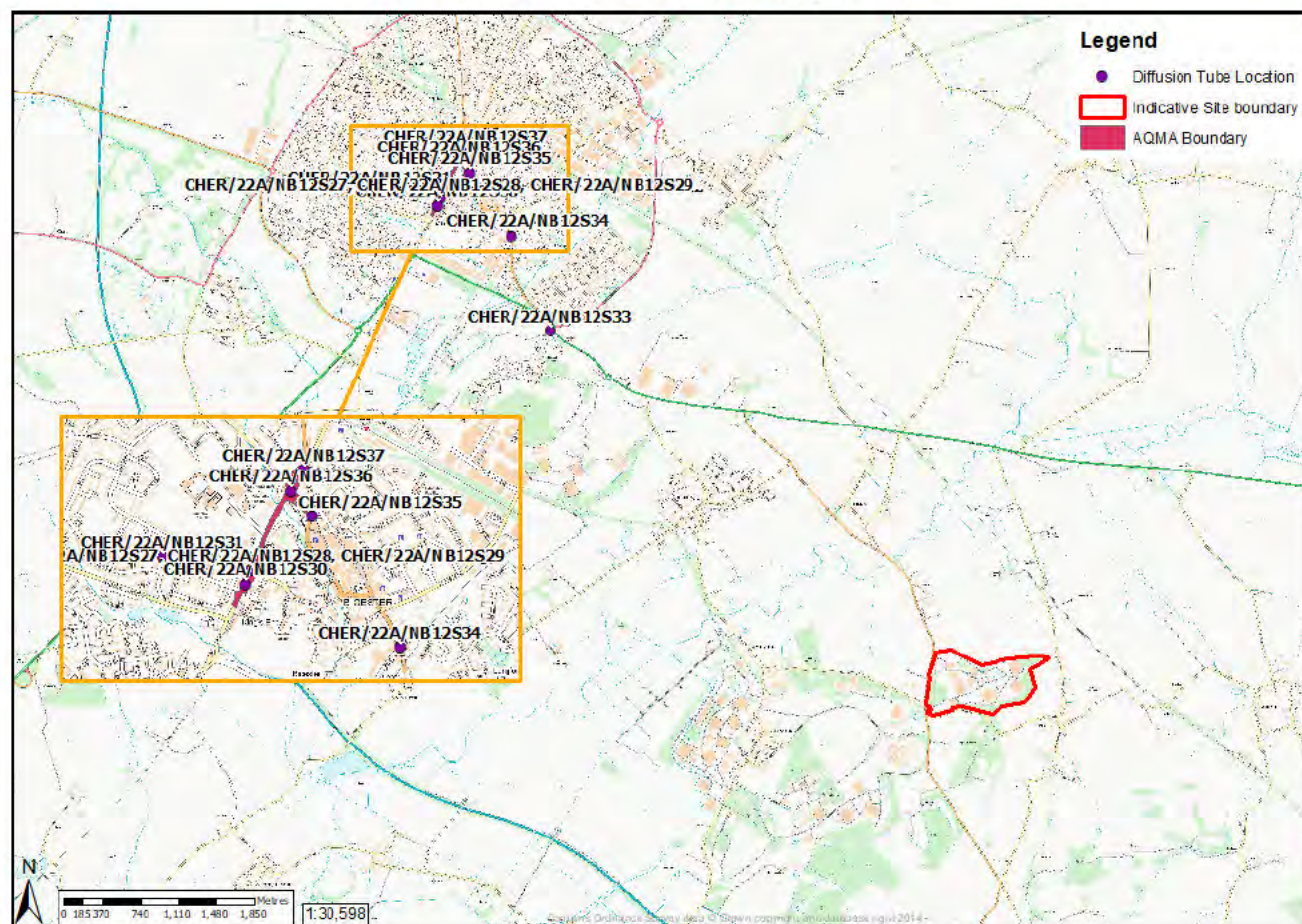
CDC operated a network of passive diffusion tubes during 2024 at various locations. The closest diffusion tube is CHER/22A/NB12S33, which is located at Bicester- Aylesbury Road, approximately 4.9 km north west of the application site. The most recently available diffusion tube data within 10 km is from 2024 and is presented in Table 4-2.

Table 4-2. Monitored Annual Mean NO₂ Concentrations at Closest Diffusion Tubes

Site ID	Location	Site Type	Distance from Kerb (m)	Inlet Height (m)	Monitored 2024 Annual Mean NO ₂ Concentration (µg/m ³)
CHER/22A/NB12S27 / CHER/22A/NB12S28 / CHER/22A/NB12S29	Bicester - Queens Avenue/Kings End	Kerbside	1.0	2.5	26.0
CHER/22A/NB12S30	Bicester - Kings End South	Roadside	1.5	2.5	27.7
CHER/22A/NB12S31	Bicester - Villiers Road	Urban Background	0.0	2.7	9.90
CHER/22A/NB12S32	Bicester - Tamarisk Gardens	Urban Background	0.0	2.5	11.0
CHER/22A/NB12S33	Bicester - Aylesbury Rd	Roadside	0.0	2.5	18.3
CHER/22A/NB12S34	Bicester - London Road	Roadside	0.0	2.5	16.3
CHER/22A/NB12S35	Bicester - St Johns	Kerbside	1.0	2.5	21.5
CHER/22A/NB12S36	Bicester - Field Street	Kerbside	1.0	2.5	21.5
CHER/22A/NB12S37	Bicester - North Street	Kerbside	1.0	2.5	22.7

As indicated in **Table 4-2**, all the closest diffusion tubes located within the Air Quality Assessment Area monitored annual average NO₂ concentrations below the AQO for NO₂ (40 µg/m³ annual mean) during 2024.

Figure 4-1. Local Authority Monitoring Locations



4.2 EMISSION SOURCES

A desktop assessment has identified that traffic movements are likely to be the most significant local source of pollutants affecting the site and its surroundings. The principal traffic-derived pollutants likely to impact local receptors are NO₂, PM₁₀ and PM_{2.5}. It should be noted that the pollutant contribution of minor roads and rail sources are considered to be accounted for via the use of background air quality levels.

The anticipated development trips are below the IAQM & EPUK threshold of 500 LDVs and 100 HDVs outside of an AQMA, for requiring further or detailed assessment. Therefore, it is not necessary to quantify traffic-related air quality impacts as a result of the operation of the proposed development, and the potential effects on air quality are not significant.

4.3 SENSITIVE RECEPTORS

There are several sensitive residential receptors along the following roads:

- Lower End Road;
- Arncott Road;
- Thame Road and
- Ludgershall Road.

The Proposed Development is not anticipated to lead to an increase in vehicle emissions along the identified roads due to the nature of the development. As such, an assessment of effects from vehicle emissions associated with the Proposed Development is not required, and the baseline and operation phase dispersion modelling has not been undertaken, as a result of the above threshold criteria not being met. Therefore, no sensitive receptors have been selected.

4.4 ECOLOGICAL RECEPTORS

Air quality impacts associated with the proposed development have the potential to impact on receptors of ecological sensitivity within the vicinity of the site. The IAQM guidance on 'Air Quality Impacts on Designated Nature Conservation Sites' (2020) outlines the types of designated nature sites within 2 km of the proposed development which require air quality statement. These are inclusive of the following:

- Sites of Special Scientific Interest (SSSIs).
- Special Areas of Conservation (SACs).
- Special Protection Areas (SPAs).
- Ramsar Sites.
- Areas of Special Scientific Interest (ASSIs).
- National Nature Reserves (NNRs).
- Local Nature Reserves (LNRs).
- Local Wildlife Sites (LWSs).
- Areas of Ancient Woodland (AW).

The Conservation of Habitats and Species Regulations (2019)²² additionally requires competent authorities to review planning applications and consents that have the potential to impact on European designated sites (e.g. Special Protection Areas).

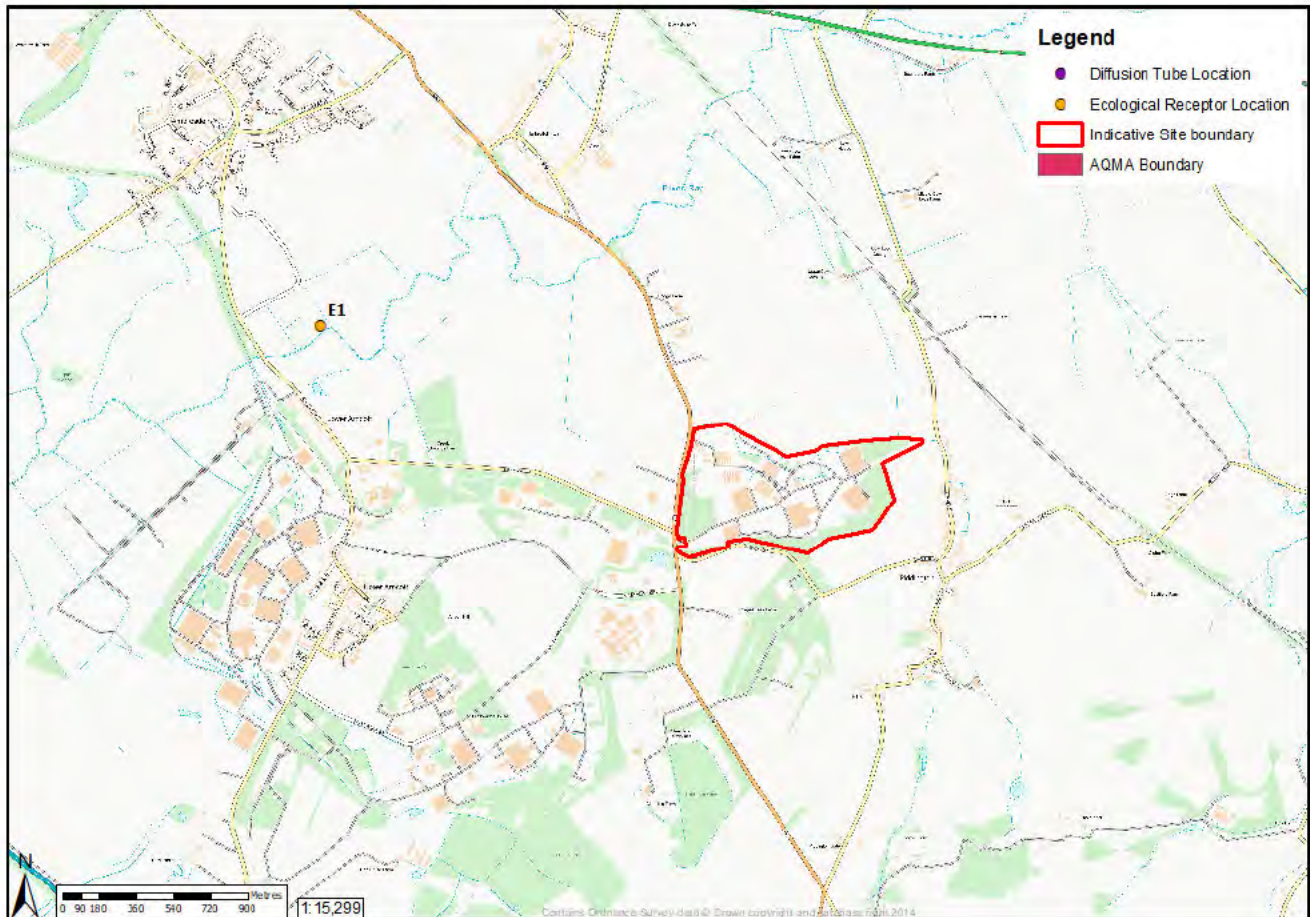
A study was undertaken to identify any statutorily designated sites of ecological or nature conservation importance within the extent of the dispersion modelling assessment. This was completed using the Multi-Agency Geographic Information for the Countryside (MAGIC) web-based interactive mapping service, which draws together information on key environmental schemes and designations. Following a search within a 2 km radius of the site boundary, the following ecological receptor was identified:

²² Conservation of Habitat and Species Regulation, from: <https://www.legislation.gov.uk/ukdsi/2019/9780111176573>

Table 4-3. Ecological Sensitive Receptor Locations

Site ID	Site	Designation	UK NGR (m)		Distance from Site (km)
			X	Y	
E1	Arncott Bridge Meadows	SSSI	461018	218576	1.88

Figure 4-2. Ecological Receptor Locations



5.0 ASSESSMENT OF AIR QUALITY IMPACTS - CONSTRUCTION PHASE

5.1 POLLUTANT SOURCES

The main emissions during construction are likely to be dust and particulate matter generated during earth moving (particularly during dry months) or from construction materials. The main potential effects of dust and particulate matter are:

- Visual - dust plume, reduced visibility, coating and soiling of surfaces leading to annoyance, loss of amenity, the need to clean surfaces;
- Physical and/or chemical contamination and corrosion of artefacts;
- Coating of vegetation and soil contamination; and,
- Health effects due to inhalation e.g. asthma or irritation of the eyes.

A number of other factors such as the amount of precipitation and other meteorological conditions will also greatly influence the amount of particulate matter generated.

Construction activities can give rise to short-term elevated dust/PM₁₀ concentrations in neighbouring areas. This may arise from vehicle movements, soiling of the public highway, demolition or windblown stockpiles.

5.2 PARTICULATE MATTER (PM₁₀)

The UK Air Quality Standards seek to control the health implications of respirable PM₁₀. However, the majority of particles released from construction will be greater than this in size.

Construction works on site have the potential to elevate localised PM₁₀ concentrations in the area. On this basis, mitigation measures should still be taken to minimise these emissions as part of good site practice.

5.3 DUST

Particles greater than 10 µm are likely to settle out relatively quickly and may cause annoyance due to their soiling capability. Although there are no formal standards or criteria for nuisance caused by deposited particles, the IAQM 'Guidance on Monitoring in the Vicinity of Demolition and Construction Sites' (October 2018) and the Environment Agency Technical Guidance Note (TGN) M17²³ states that dust is usually compared with a 'complaints likely' guideline of 200 mg/m²/day. Therefore, a deposition rate of 200 mg/m²/day is often presented as a threshold for serious nuisance though this is usually only applied to long-term exposure, as people are generally more tolerant of dust for a short or defined period. Significant nuisance is likely when the dust coverage of surfaces is visible in contrast with adjacent clean areas, especially when it happens regularly. Severe dust nuisance occurs when the dust is perceptible without a clean reference surface.

Construction activities have the potential to suspend dust, which could result in annoyance of residents surrounding the site. Measures will be taken to minimise the emissions of dust as part of good site practice.

²³ [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/301206/TGN_M17 - Monitoring of particulate matter in ambient air around waste facilities.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/301206/TGN_M17_-_Monitoring_of_particulate_matter_in_ambient_air_around_waste_facilities.pdf)

Recommended mitigation measures proportionate to the risk associated with the development and based on best practice guidance are discussed in the following sections.

5.4 METHODOLOGY

The construction phase assessment utilises the IAQM 'Guidance on the Assessment of Dust from Demolition and Construction' document published in January 2024.

Four construction processes are considered; these are demolition, earthworks, construction and trackout. For each of these phases, the impact description of the potential dust impacts is derived following the determination of a dust emission magnitude and the distance of activities to the nearest sensitive receptor, therefore assessing worst case impacts. A full explanation of the methodology is contained in **Appendix A**.

5.5 ASSESSMENT RESULTS

Based on the methodology detailed in **Appendix A**, the scale of the anticipated works has determined the potential dust emission magnitude for each process, as presented in the **Table 5-1**.

Table 5-1. Dust Emission Magnitude

Construction Process	Site Criteria	Dust Emission Magnitude
Demolition	Total Demolition Volume < 12,000 m ³	Small
Earthworks	Total Site Area Between 18,000 – 110,000 m ²	Medium
Construction	Total Building Volume Between 12,000 – 75,000 m ³	Medium
Trackout	Assumed 20 - 50 HDV outward movements in any one day	Medium

The sensitivity of the surrounding area to each construction process has been determined following stage 2B of the IAQM guidance. The assessment has determined the area sensitivities as shown in the **Table 5-2**.

The sensitivity of the ecological receptors is considered not applicable within the construction phase assessment due to the distance from the application site which is greater than 50 m from the site boundary, or 50 m of roads within 250 m of the site. This is in accordance with Table 4 of the IAQM Guidance.

Table 5-2. Sensitivity of the Area

Source	Area Sensitivity					
	Dust Soiling	Site Sensitivity Criteria	Health Effects of PM ₁₀	Site Sensitivity Criteria	Ecological	Site Sensitivity Criteria
Demolition	Low	1-10 High Sensitive Receptors within 250 m of site	Low	Annual Mean of <24 µg/m ³ for PM ₁₀ 1-10 High Sensitive Receptors within 250 m of site	N/A	No demolition required
Earthworks	Low		Low		N/A	>50 m from site boundary
Construction	Low		Low		N/A	
Trackout	Low	>1 Medium Sensitive Receptors within 50 m of roads within 250 m of site	Low	Annual Mean of <24 µg/m ³ for PM ₁₀ >1 Medium Sensitive Receptors within 50 m of roads within 250 m of site	N/A	>50 m from roads within 250 m from site boundary

The dust emission magnitude determined in **Table 5-1** has been combined with the sensitivity of the area

determined in **Table 5-2**, to determine the risk of impacts prior to the implementation of appropriate mitigation measures. The potential impact significance of dust emissions associated with the development, without mitigation, is presented in **Table 5-3**.

Table 5-3. Impact Description of Construction Activities without Mitigation

Source	Summary Risk of Impacts Prior to Mitigation		
	Dust Soiling	Health Effects of PM ₁₀	Ecological
Demolition	Negligible	Negligible	N/A
Earthworks	Low	Low	N/A
Construction	Low	Low	N/A
Trackout	Low	Low	N/A

Appropriate mitigation measures are detailed and presented in Section 7. Following the adoption of these measures, the subsequent impact significance of the construction phase is not predicted to be significant.

6.0 ASSESSMENT OF AIR QUALITY – OPERATIONAL PHASE

6.1 EXISTING AND PREDICTED TRAFFIC FLOWS

In the context of the proposed development, road traffic is identified as the dominant emission source that is likely to cause potential risk of exposure to air pollutants at receptors.

The level of traffic contribution in AADT as a result of the proposed development is anticipated to be below the EPUK & IAQM criteria of 500 AADT LDV or 100 AADT HDV outside of an AQMA, requiring further or detailed assessment. Therefore, it has not been considered necessary to quantify traffic-related air quality impacts as a result of the operation of the proposed development.

6.2 BACKGROUND CONCENTRATIONS

Although a detailed modelling assessment is not required for the proposals based on the EPUK & IAQM criteria, the following details on background concentrations have been presented for information purposes to give context on existing conditions in the area.

Defra Published Background Concentrations for 2024

The background concentrations shown in **Table 6-1** were referenced from the UK National Air Quality Information Archive database based on the National Grid Co-ordinates of 1 x 1 km grid squares nearest to the application site. In November 2024, Defra issued revised 2021-based background maps²⁴ for nitrogen oxide (NO_x), NO₂, PM₁₀ and PM_{2.5}.

²⁴ Department for Environment, Food and Rural Affairs, Background Maps, from: <https://uk-air.defra.gov.uk/data/iaqm-background-maps?year=2021>

Table 6-1. Published Background Air Quality Levels ($\mu\text{g}/\text{m}^3$)

Receptor Location		2024			
		NO _x	NO ₂	PM ₁₀	PM _{2.5}
463203	217784	8.62	6.78	11.97	6.64
Local Authority Monitoring					
CHER/22A/NB12S27, CHER/22A/NB12S28, CHER/22A/NB12S29		9.66	7.56	13.99	7.00
CHER/22A/NB12S30		9.66	7.56	13.99	7.00
CHER/22A/NB12S31		9.13	7.16	12.63	7.21
CHER/22A/NB12S32		9.16	7.19	12.40	7.30
CHER/22A/NB12S33		8.28	6.54	12.33	6.65
CHER/22A/NB12S34		9.43	7.39	12.55	6.87
CHER/22A/NB12S35		9.13	7.16	12.63	7.21
CHER/22A/NB12S36		9.13	7.16	12.63	7.21
CHER/22A/NB12S37		9.13	7.16	12.63	7.21

All the Defra background concentrations detailed in **Table 6-1** for 2024 show that the background levels are predicted to be below the relevant AQO within the study area.

A breakdown of the background source apportionment of NO_x concentrations at each monitoring location and receptor is shown in **Table 6-2**.

Table 6-2. Pollutant Source Apportionment of NO_x ($\mu\text{g}/\text{m}^3$)

Receptor Location	2024						
	Total NO _x	% of NO _x from Road Sources	% of NO _x from Industrial Sources	% of NO _x from Domestic Sources	% of NO _x from Aircraft Sources	% of NO _x from Rail Sources	% of NO _x from Other Sources
Local Authority Monitoring							
CHER/22A/NB12S27, CHER/22A/NB12S28, CHER/22A/NB12S29	9.66	29.89	6.09	4.76	0.18	1.70	57.38
CHER/22A/NB12S30	9.66	29.89	6.09	4.76	0.18	1.70	57.38
CHER/22A/NB12S31	9.13	22.33	6.33	8.25	0.21	1.97	60.91
CHER/22A/NB12S32	9.16	22.55	6.39	7.32	0.21	3.22	60.31
CHER/22A/NB12S33	8.28	19.57	6.79	4.30	0.20	2.07	67.07
CHER/22A/NB12S34	9.43	25.15	6.29	5.79	0.19	2.68	59.89
CHER/22A/NB12S35	9.13	22.33	6.33	8.25	0.21	1.97	60.91
CHER/22A/NB12S36	9.13	22.33	6.33	8.25	0.21	1.97	60.91
CHER/22A/NB12S37	9.13	22.33	6.33	8.25	0.21	1.97	60.91

Table 6-2 shows that the major background source of NO_x at the monitoring, sensitive receptor locations where sources have been identified are mainly comprised of road and other sources.

A review of the Defra background site has determined that they are in line with the Local Authority monitoring within CDC.

7.0 MITIGATION

7.1 CONSTRUCTION PHASE

The dust risk categories have been determined in Section 5.0 for each of the four construction activities. The assessment has determined that the potential impact description of dust emissions associated with the construction phase of the proposed development is 'low risk' at the worst-affected receptors.

Using the methodology described in Appendix A, appropriate site-specific mitigation measures associated with the determined level of risk can be found in Section 8.2 of the 2024 IAQM Guidance Document 'Guidance on the Assessment of Dust from Demolition and Construction'.

The mitigation measures have been divided into general measures applicable to all sites and measures applicable specifically to demolition, earthworks, construction and trackout. They are categorised into 'highly recommended' (H), 'desirable' (D) and not required (N) measures.

The mitigation measures for the proposed development are detailed in **Table 7-1**.

Table 7-1. IAQM 'Guidance on the Assessment of Dust from Demolition and Construction' Mitigation Measures

Mitigation Measure	Low Risk	Medium Risk	High Risk
Communications			
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	N	H	H
Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.	H	H	H
Display the head or regional office contact information.	H	H	H
Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, real-time PM10 continuous monitoring and/or visual inspections.	D	H	H
Site Management			
Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.	H	H	H
Make the complaints log available to the local authority when asked.	H	H	H
Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.	H	H	H

Mitigation Measure	Low Risk	Medium Risk	High Risk
Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.	N	N	H
Monitoring			
Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.	D	D	H
Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.	H	H	H
Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	H	H	H
Agree dust deposition, dust flux, or real-time PM ₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	H	H	H
Preparing and maintaining the site			
Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H	H	H
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H	H	H
Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.	D	H	H
Avoid site runoff of water or mud.	H	H	H
Keep site fencing, barriers and scaffolding clean using wet methods.	D	H	H
Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.	D	H	H
Cover, seed or fence stockpiles to prevent wind whipping.	D	H	H
Operating vehicle/machinery and sustainable travel			
Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.	H	H	H
Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	H
Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.	H	H	H

Mitigation Measure	Low Risk	Medium Risk	High Risk
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).	D	D	H
Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	N	N	H
Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	N	D	H
Operations			
Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.	H	H	H
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/ mitigation, using non-potable water where possible and appropriate	H	H	H
Use enclosed chutes and conveyors and covered skips.	H	H	H
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H	H	H
Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	D	H	H
Waste management			
Avoid bonfires and burning of waste materials.	H	H	H
Earthworks			
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	N	D	H
Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	N	D	H
Only remove the cover in small areas during work and not all at once.	N	D	H
Construction			
Avoid scabbling (roughening of concrete surfaces) if possible.	D	D	H
Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	D	H	H
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	N	D	H

Mitigation Measure	Low Risk	Medium Risk	High Risk
For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	N	D	D
Trackout			
Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.	D	H	H
Avoid dry sweeping of large areas.	D	H	H
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	D	H	H
Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	N	H	H
Record all inspections of haul routes and any subsequent action in a site log book.	D	H	H
Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	N	H	H
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	D	H	H
Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	N	H	H
Access gates to be located at least 10 m from receptors where possible.	N	H	H
H = Highly Recommended D = Desirable N = Not Required			

Following the implementation of the mitigation measures detailed in the table above, the impact description of the construction phase is not considered to be significant.

7.2 OPERATIONAL PHASE

In the context of the proposed development, road traffic is identified as the dominant emission source that is likely to cause potential risk of exposure to air pollutants at receptors. The anticipated development trips are below the IAQM & EPUK threshold of 500 LDVs and 100 HDVs, and as such a detailed air quality assessment is deemed not to be required. A screening level assessment has been undertaken characterising baseline air quality, identifying sensitive receptors and determining the requirement for any additional mitigation beyond that which is already considered for the proposed development, for example, the development of a Traffic Plan.

8.0 CONCLUSIONS

This report presents the findings of an Air Quality Screening Technical Note produced to assess road traffic emissions and construction dust impacts in support of a planning application for the provision of modular accommodation at Ministry of Defence (MOD) Site MOD015.

Construction Assessment

Prior to the implementation of appropriate mitigation measures, the potential impact description of dust emissions associated with the construction phase of the proposed development is 'low risk' at the worst-affected receptors without mitigation. However, appropriate site-specific mitigation measures have been proposed based on Section 8.2 of the IAQM 'Guidance on the Assessment of Dust from Demolition, Earthworks, Construction and Trackout'. It is anticipated that with these appropriate mitigation measures in place, the risk of adverse effects due to dust emissions from the construction phase will not be significant.

Operational Phase

In the context of the proposed development, road traffic is identified as the dominant emission source that is likely to cause potential risk of exposure to air pollutants at receptors. The anticipated development trips are below the IAQM & EPUK threshold of 500 LDVs and 100 HDVs, and as such, a detailed air quality assessment is deemed not to be required. A screening level assessment has been undertaken characterising baseline air quality, identifying sensitive receptors and determining the requirement for any additional mitigation beyond that is already considered for the proposed development, for example, the development of a Traffic Plan.

The assessment demonstrates that operational phase air quality impacts are not significant.

APPENDIX A - CONSTRUCTION PHASE ASSESSMENT METHODOLOGY

The following information sets out the adopted approach to the construction phase impact assessment in accordance with the aforementioned IAQM guidance²⁵.

Step 1 – Screen the Requirement for a more Detailed Assessment

An assessment will normally be required where there is:

- a 'human receptor' within:
 - 250 m of the boundary of the site; or
 - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).
- an 'ecological receptor' within:
 - 50 m of the boundary of the site; or
 - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

For specific (high-risk) schemes the planning authority may require dust assessment despite the proposed site falling outside the distances above.

Step 2A – Define the Potential Dust Emission Magnitude

Demolition

The dust emission magnitude for the demolition phase has been determined based on the following criteria:

- *Large*: Total building volume >75,000 m³, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >12 m above ground level;
- *Medium*: Total building volume 12,000 m³ – 75,000 m³, potentially dusty construction material, demolition activities 6-12 m above ground level; and
- *Small*: Total building volume <12,000 m³, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months.

Earthworks

The dust emission magnitude for the planned earthworks has been determined based on the following criteria:

- *Large*: Total site area >110,000 m², potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth-moving vehicles active at any one time, formation of bunds >6 m in height;
- *Medium*: Total site area 18,000 m² – 110,000 m², moderately dusty soil type (e.g. silt), 5-10 heavy earth-moving vehicles active at any one time, formation of bunds 3 m – 6 m in height; and
- *Small*: Total site area <18,000 m², soil type with large grain size (e.g. sand), <5 heavy earth-moving vehicles active at any one time, formation of bunds <3 m in height.

Construction

The dust emission magnitude for the construction phase has been determined based on the following criteria:

- *Large*: Total building volume >75,000 m³, on site concrete batching, sandblasting;
- *Medium*: Total building volume 12,000 m³ – 75,000 m³, potentially dusty construction material (e.g. concrete), on-site concrete batching; and
- *Small*: Total building volume <12,000 m³, construction material with low potential for dust release (e.g. metal cladding or timber).

Trackout

The dust emission magnitude for trackout has been determined based on the following criteria:

- *Large*: >50 HDV (>3.5 t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m;
- *Medium*: 20-50 HDV (>3.5 t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m; and
- *Small*: <20 HDV (>3.5 t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m.

It should be noted that a vehicle movement is a one-way journey. i.e. from A to B, and excludes the return journey. HDV movements during a construction project vary over its lifetime, and the number of movements is the maximum not the average.

Step 2B - Defining the Sensitivity of the Area

Sensitivities of People to Dust Soiling Effects

²⁵ Institute of Air Quality Management 2024. *Guidance on the assessment of dust from demolition and construction version 2.2.*

- *High:*
 - users can reasonably expect enjoyment of a high level of amenity;
 - the appearance, aesthetics or value of their property would be diminished by soiling;
 - the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land;
 - indicative examples include dwellings, museums and other culturally important collections, medium- and long-term car parks and car showrooms.
- *Medium:*
 - users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home;
 - the appearance, aesthetics or value of their property could be diminished by soiling;
 - the people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land;
 - indicative examples include parks and places of work.
- *Low:*
 - The enjoyment of amenity would not reasonably be expected;
 - property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling;
 - there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land;
 - indicative examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table B-1. Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Note - For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.

Sensitivities of People to the Health Effects of PM₁₀

- *High:*
 - locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).
 - indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.
- *Medium:*
 - locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).
 - indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM₁₀, as protection is covered by Health and Safety at Work legislation.
- *Low:*
 - locations where human exposure is transient.
 - indicative examples include public footpaths, playing fields, parks and shopping streets.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table B-2. Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32 µg/m ³ (>18 µg/m ³ in Scotland)	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28 – 32 µg/m ³ (16 – 18 µg/m ³ in Scotland)	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24 – 28 µg/m ³ (14 – 16 µg/m ³ in Scotland)	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m ³ (<14 µg/m ³ in Scotland)	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32 µg/m ³ (>18 µg/m ³ in Scotland)	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28 – 32 µg/m ³ (16 – 18 µg/m ³ in Scotland)	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24 – 28 µg/m ³ (14 – 16 µg/m ³ in Scotland)	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24 µg/m ³ (<14 µg/m ³ in Scotland)	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	–	>1	Low	Low	Low	Low

Note - For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.

Sensitivities of Receptors to Ecological Effects

- **High:**
 - locations with an international or national designation and the designated features may be affected by dust soiling; or
 - locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain.
 - indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.
- **Medium:**
 - locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or
 - locations with a national designation where the features may be affected by dust deposition.
 - indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.
- **Low:**
 - locations with a local designation where the features may be affected by dust deposition.
 - indicative example is a local Nature Reserve with dust sensitive features.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table B-3. Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Note - For trackout, the distances should be measured from the side of the roads used by construction traffic. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.

Step 2C - Defining the Risk of Impacts

The risk of impacts with no mitigation is determined by combining the dust emission magnitude determined in Step 2A and the sensitivity of the area determined in Step 2B.

The following tables provide a method of assigning the level of risk for each activity.

Demolition

Table B-4. Risk of Dust Impacts, Demolition

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Earthworks

Table B-5. Risk of Dust Impacts, Earthworks

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Construction

Table B-6. Risk of Dust Impacts, Construction

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Trackout

Table B-7. Risk of Dust Impacts, Trackout

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Step 3 – Site Specific Mitigation

The dust risk categories for each of the four activities determined in Step 2C should be used to define the appropriate, site-specific mitigation measures to be adopted.

These mitigation measures are contained within section 8.2 of the IAQM 'Guidance on the Assessment of Dust from Demolition and Construction'.